

Cardiovascular Screening

(Coronary Heart Disease, Stroke, and Hypertension)

Guideline: Each person should be evaluated for the risk for coronary heart disease (CHD) and stroke according to the recommendations of nationally recognized health organizations.

The following Guideline is intended to help physicians, nurses, and others involved in clinical decision-making by describing the recommended course of action for screening individuals served by SCDDSN for risks of coronary heart disease and stroke. As much as possible, the recommendations reflect the strength of evidence and magnitude of net benefit (benefits minus harms) as reported by the U.S. Preventive Services Task Force, the American Heart Association, Center for Disease Control and Prevention; the National Heart, Lung, and Blood Institute and other nationally recognized health organizations. Decisions about screening should be based on clinical history, assessment, and other factors unique to the individual. When, because of behavioral or physical conditions, it would be necessary to use conscious sedation or general anesthesia to complete screening procedures, screenings should be completed at the discretion of the primary care prescriber after a risk/benefit analysis has been completed.

DEFINITIONS:

Health screening: The process of assessing the present health status of an individual through periodic health examinations.

Individual's record: A permanent legal document that provides comprehensive information about the individual's health care status.

Medical progress notes: The section of the individual's record where primary care prescribers document their findings and provide rationale for treatment plans.

Primary care prescribers: Physicians, nurse practitioners, and physician's assistants who provide primary care services and are authorized to prescribe medications and treatments for people on their assigned caseloads.

Risk factor: Anything that increases a person's chance of getting a disease. However, when a person develops a disease, it is not possible to say with certainty that a particular risk factor was the cause.

RATIONALE:

1. Coronary heart disease (CHD) is the number one killer of American men and women.
2. The purpose of cholesterol screening is to help identify people who are at risk for CHD due to high blood cholesterol and other CHD risk factors.
3. A high level of cholesterol in the blood (hypercholesterolemia) is a major risk factor for CHD, which leads to heart attacks.
5. Treatment of CHD is most successful when detected and treated early.
6. Stroke is the third most common cause of death in the United States.
7. Uncontrolled blood pressure can lead to stroke, heart attack, congestive heart failure or kidney failure.
8. High blood pressure is the most important risk factor for stroke.

EXPECTED OUTCOMES:

1. Staff should be aware of the common warning signs of a heart attack.¹
 - a. Some heart attacks are sudden and intense but most start slowly with mild pain or discomfort.
 - b. Chest pain - Uncomfortable pressure, feeling of fullness, squeezing-type pain in the center of the chest that lasts for more than a few minutes.
 - c. Discomfort in other areas of the upper body – Symptoms can include pain or discomfort in one or both arms, the back, neck, jaw or stomach.
 - c. Shortness of breath may occur with or without chest pain.
 - d. Other signs may include breaking out in a cold sweat, lightheadedness, or nausea.
2. Staff should be aware of the common warning signs of stroke.¹
 - a. Sudden numbness or weakness of the face, arm or leg, especially on one side of the body.
 - b. Sudden confusion, trouble speaking, or understanding.
 - c. Sudden trouble seeing in one or both eyes.
 - d. Sudden trouble walking, dizziness, loss of balance or coordination
 - e. Sudden, severe headache with no known cause.
3. Changes in a person's appearance, activity-level, or behavior that may suggest early signs or symptoms of CHD or stroke should be reported promptly to health personnel. The nurse should document reported information and observations in the nursing notes.
4. Prompt and thorough follow-up should be completed and documented when signs and/or symptoms of CHD, high blood pressure, or stroke are detected.
 - a. The medical plan of care should be documented in the medical progress notes.
 - b. Nursing strategies, interventions, and follow-up should be documented in the nursing notes.

Cholesterol Screening Guidelines

1. Everyone 20 years of age and older should have their cholesterol measured at least every 5 years.²
 - a. The lipoprotein profile is the test of choice. The blood test is done after a 9 to 12 hour fast and provides information on:
 - Total Cholesterol
 - LDL (bad) cholesterol – the main source of cholesterol buildup and blockage in the arteries
 - HDL (good) cholesterol – helps keep cholesterol from building up in the arteries
 - Triglycerides – another form of fat in the blood.
2. Children and adolescents³
 - a. Universal screening is not recommended.
 - b. The only need for cholesterol screening in children and adolescents is to identify pediatric patients with familial hypercholesterolemia (FH), since early disease detection is crucial to facilitate treatment to prevent coronary artery disease.

Tables 1 and 2 provide cholesterol and triglyceride levels for adults with interpretive ranges.

Table 1. Triglyceride levels after 9 to 12 hour fast ²

< 200 MG/DL	NORMAL TRIGLYCERIDES
200 – 400 mg/dL	Borderline-high triglycerides
400 – 1000 mg/dL	High triglycerides
> 1000 mg/dL	Very high triglycerides

Table 2. Lipoprotein levels after 9 to 12 hour fast ²

LDH CHOLESTEROL – (Primary Target of Therapy)	
< 100 mg/dL	Optimal
100-129 mg/dL	Near optimal/above optimal
130-159 mg/dL	Borderline high
160 – 189 mg/dL	High
≥ 190 mg/dL	Very High
TOTAL CHOLESTEROL	
< 200 mg/dL	Desirable
200 – 239 mg/dL	Borderline High
≥ 240 mg/dL	High
HDL	
< 40 mg/dL	Low
≥ 60 mg/dL	High

Blood Pressure Screening Guidelines

1. Blood pressure should be taken at the time of the annual physical examination and more frequently if deemed necessary by the primary care prescriber.
2. Diagnosis of high blood pressure is based on the average of two or more readings taken at each of two or more sittings after initial screening.⁴
3. The person should avoid exercise and smoking for 30 minutes prior to blood pressure assessment.⁴
4. Blood pressure should be taken only after the person has been at rest for 5 minutes prior to measurement.⁴
5. When possible the client should be sitting in a chair when the blood pressure is taken.^{4,5}
6. Blood pressure readings should be documented in appropriate place in the individual's record.
7. Classification of blood pressure for adults (age 18 and older) with recommended follow-up is summarized on Table 3.

Table 3. Classification of Blood Pressure and Follow-up (Adults)^{4,5}

Category	Systolic (mm Hg)	Diastolic (mm Hg)	Follow-up recommended
Normal	less than 120	AND less than 80	Recheck in 2 years
Pre-Hypertension	120-139	OR 80-89	Recheck in 1 year
HYPERTENSION			
- Stage 1	140-159	OR 90-99	Confirm within 2 months
- Stage 2	>160	OR >100	Evaluate within 1 month Evaluate immediately if Systolic > 180 or Diastolic > 110.

Risk Factors for Coronary Heart Disease⁶Uncontrollable risk factors

1. Increasing age
2. Male sex (gender)
3. Hereditary (including race)
 - a. Children of parents with heart disease
 - b. African Americans, Mexican Americans, American Indians, native Hawaiians and some Asian Americans

Risk Factors that can be lowered by modification, treatment or control

1. Tobacco smoke
 - a. Cigarette smoking, cigar, and pipe smoking
 - b. Environmental tobacco smoke (constant exposure to other people's smoke)
2. High blood cholesterol levels
3. High blood pressure
4. Physical inactivity
5. Obesity and overweight
6. Diabetes mellitus

Other factors that contribute to heart disease risk

1. Stress
2. Excessive alcohol intake can raise blood pressure, cause heart failure, and lead to stroke.

Risk Factors for Stroke⁷Uncontrollable risk factors

1. Increasing age
2. Hereditary (including race)
 - a. Children with parents who suffered a stroke
 - b. African American
3. Prior stroke or heart attack

Risk Factors for Stroke, cont'dRisk factors that can be changed, treated, or controlled

1. High blood pressure

2. Diabetes mellitus
3. Heart disease
4. Atrial fibrillation
5. Transient ischemic attacks (TIAs)
6. Carotid artery disease

Risk factors that require a lifestyle change

1. Tobacco use – Cigarette smoking is the number one preventable risk factor for stroke.
2. Physical inactivity and obesity
3. Excessive alcohol use
4. Illegal drug abuse (IV drug abuse and use of cocaine)

Risk Factors for High Blood Pressure⁸

Factors that increase the risk of developing high blood pressure

1. Heredity
2. Race – African Americans more likely to have high blood pressure than Caucasians.
3. Male gender
4. Increasing age
5. Sodium (salt) sensitivity
6. Obesity and overweight

Other factors that contribute to high blood pressure

1. Sedentary or inactive lifestyle
2. Heavy alcohol consumption
3. Diabetes mellitus, gout, and kidney disease
4. Pregnancy
5. Use of some oral contraceptives and some other medications

REFERENCES

1. American Heart Association (2005). Heart Attack, Stroke, & Cardiac Arrest Warning Signs. Retrieved August 3, 2005 from the World Wide Web: <http://www.americanheart.org/presenter.jhtml?identifier=3053>.
2. National Heart, Lung, and Blood Institute. (2005, June.). National Cholesterol Education Program's High Blood Cholesterol: What you need to know. NIH Publication No. 05-3290. Retrieved August 3, 2005 from the World Wide Web: <http://www.nhlbi.nih.gov/health/public/heart/chol/wyntk.pdf>.
3. Institute for Clinical Systems Improvement (ICSI). (2004, June). Lipid screening in children and adolescents. Bloomington (MN): Institute for Clinical Systems Improvement. Retrieved August 5, 2005 from World Wide Web: http://www.guideline.gov/summary/summary.aspx?ss=14&doc_id=5453&string=
4. Potter, P.A. & Perry, A.G. (2005). Fundamentals of Nursing (6th ed.). Chapter 31 – Vital Signs. St. Louis: Mosby.
5. National Heart, Lung, and Blood Pressure Institute (2003, December). The Seventh Report of the Joint National Committee on Prevention, Detection, and Treatment of High Blood Pressure. Retrieved August 3, 2005 from the World Wide Web: <http://www.nhlbi.nih.gov/guidelines/hypertension/jncintro.htm>.
6. American Heart Association. (2005). Risk Factors and Coronary Heart Disease. Retrieved August 3, 2005 from the World Wide Web: <http://www.americanheart.org/presenter.jhtml?identifier=500>.
7. American Heart Association. (2005). Risk Factors for Stroke. Retrieved August 3, 2005 from the World Wide Web: <http://www.americanheart.org/presenter.jhtml?identifier=27>
8. American Heart Association. (2005). Factors that Contribute to High Blood Pressure. Retrieved August 3, 2005 from the World Wide Web: <http://www.americanheart.org/presenter.jhtml?identifier=4650>